

### ***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1, 4, 6-11, 14, and 16-26 are pending in the application, with claims 1, 10, and 11 being the independent claims. Claims 2, 3, 5, 12, 13, and 15 were previously canceled without prejudice to or disclaimer of the subject matter therein. Claims 1, 7-11, 14, and 16-19 are sought to be amended. Claims 20-26 are sought to be added. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendments and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections and that they be withdrawn.

### ***Rejections under 35 U.S.C. § 103***

#### Claims 1, 4, 8, 10-14, and 18

The Examiner rejected claims 1, 4, 8, 10-14, and 18 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,701,106 to Pikkarainen *et al.* (hereinafter "Pikkarainen") in further view of U.S. Patent No. 7,227,910 to Lipka ("Lipka"). Applicants respectfully traverse.

Claims 1, 10, and 11 recite features distinguishable over the applied references. For example, claim 1 recites "adjusting a DC offset in a digital quadrature signal." Claims 10 and 11, using their respective language, recite similar distinguishing features. The Examiner pointed to Pikkarainen and Lipka in rejecting claims 1, 10, and 11. (*See* Office Action, 10/16/08, p. 4.)

Pikkarainen appears to disclose a modulator configured to modulate a digital signal to an analog intermediate-frequency (IF) signal. (*See Abstract.*) In particular, a complex I/Q signal is processed in two separate branches, where the I signal is processed in one branch and the Q signal is processed in the other branch. (*See col. 5, line 38 to col. 6, line 39 and FIG. 8.*) The I and Q signals are first fed to a digital interpolator/filter. (*See id.*) A sigma-delta modulator receives the processed I and Q signals from the digital interpolator/filter and provides a 1-bit output. (*See id.*) Following the sigma-delta modulator, a 90-degree phase shift is added to the Q branch, thus modifying the original phase difference between the I and Q signals (i.e., the phase difference between the I and Q signals when the I and Q signals are fed to the digital interpolator/filter). (*See id.*) The 1-bit I and Q (with a 90-degree phase shift) signals are then processed by a 1-bit digital-to-analog converter (DAC), which provides an analog output for both I and Q signals. (*See id.*) The analog versions of the I and Q signals are summed in an adder, where the resulting analog signal is filtered and modulated to an IF signal. (*See id.*)

Lipka appears to disclose a sigma-delta modulator with a configurable output. (*See Abstract.*) A complex I/Q signal can be processed in two branches, where the I signal is processed in one branch and the Q signal is processed in another branch. (*See col. 4, line 59 to col. 5, line 44 and FIG. 2.*) The I and Q filters are processed by pulse shaping filters. (*See id.*) The output of the pulse shaping filters is then processed by an interpolation filter for up-sampling and interpolation of values for inserted samples into the filtered I and Q signals. (*See id.*) The processed I and Q signals are then fed to a sigma-delta modulator in order to adapt a bit width of the filtered samples to a bit width of a DAC. (*See id.*)

In the above descriptions of Pikkarainen and Lipka, a DC offset in the I and Q signals is not compensated for (or adjusted) before the I and Q signals are processed by the sigma-delta modulator. Nowhere does Pikkarainen or Lipka, alone or in combination, teach or suggest "adjusting a DC offset in a digital quadrature signal," as recited in claims 1, 10, and 11. Therefore, Pikkarainen and Lipka cannot be used to establish a *prima facie* case of obviousness for claims 1, 10, and 11.

Applicants respectfully request that the Examiner find claims 1, 10, and 11 patentable over the applied references. At least based on their dependency from claims 1 and 11, claims 4, 8, 12-14, and 18 should also be found patentable over the applied references, as well as for their additional distinguishing features.

#### Claims 6 and 16

The Examiner rejected claims 6 and 16 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Pikkarainen and Lipka, further in view of U.S. Patent No. 6,819,276 to Hossack. Applicants respectfully traverse.

Given that claims 6 and 16 depend from claims 1 and 11, respectively, Applicants respectfully submit that claims 6 and 16 are patentable for the same reasons described above with respect to claims 1 and 11, as well as for their additional distinguishing features.

#### Claims 7 and 17

The Examiner rejected claims 7 and 17 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Pikkarainen and Lipka, further in view of U.S. Patent No. 5,512,898 to Norsworthy. Applicants respectfully traverse.

Given that claims 7 and 17 depend from claims 1 and 11, respectively, Applicants respectfully submit that claims 7 and 17 are patentable for the same reasons described above with respect to claims 1 and 11, as well as for their additional distinguishing features.

Claims 9 and 19

The Examiner rejected claims 9 and 19 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Pikkarainen and Lipka, further in view of U.S. Patent No. 6,236,912 to Fujimori. Applicants respectfully traverse.

Given that claims 9 and 19 depend from claims 1 and 11, respectively, Applicants respectfully submit that claims 9 and 19 are patentable for the same reasons described above with respect to claims 1 and 11, as well as for their additional distinguishing features.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejections under 35 U.S.C. § 103(a) and pass claims 1, 4, 6-11, 14, and 16-19 to allowance.

***New Claims 20-26***

Claims 20-26 depend from claims 1, 10, and 11, and at least for the reasons described above with respect to claims 1, 10, and 11, claims 20-26 should be found allowable over the cited references, as well as for their additional distinguishing features. Accordingly, Applicant respectfully requests that the Examiner pass claims 20-26 to allowance.

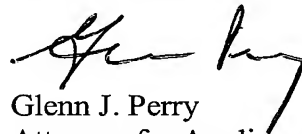
***Conclusion***

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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